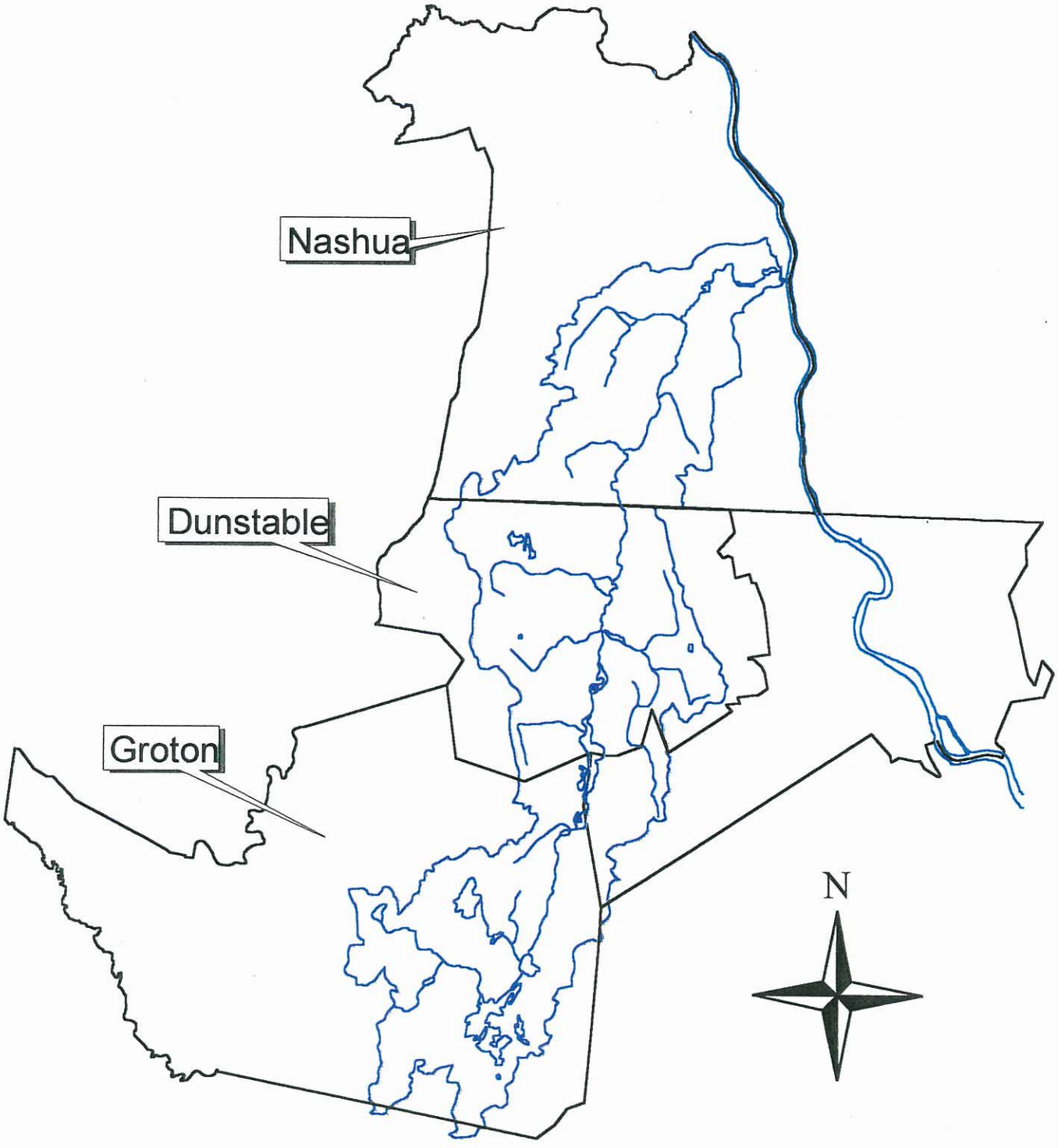
Knops Pond & Lost Lake, Groton, MA

Salmon Brook Watershed 1999 Shoreline Survey Report

Linda Bretz completing a Shoreline Survey

Salmon Brook Nashua, NH

Salmon Brook Watershed



Shoreline Survey Report and Action Plans for the Salmon Brook Watershed

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Funded by:
Massachusetts Riverways Programs, Department of Fisheries, Wildlife and Environmental Law Enforcement, Coastal Zone Management, The Greater Lowell Community Foundation, and The Parker Foundation

Salmon Brook Stream Teams 1999

EXECUTIVE SUMMARY

Salmon Brook, which is called many things along its windy path, originates in Groton, MA at Martin's Pond. Running southward, the Pond turns into Martin's Pond Brook, feeding into what are called "the Groton Lakes" (Knops Pond and Lost Lake). The waterway then turns northward, when Lost Lake drains into Whitney Pond, and then on a more north track turns into Cow Pond Brook. Cow Pond Brook then joins Massapoag Pond, which is now dammed into Upper and Lower Massapoag Ponds. Massapoag Pond runs through Groton, then Tyngsborough, and finally Dunstable, before it finally becomes Salmon Brook, just under Route 113. Salmon Brook then meanders directly north through Arch Bridge Conservation Area and crosses the state line, entering Nashua, NH. In Nashua, it squirms behind new developments, under newly renovated bridges, under a widened Route 3, behind Bishop Guertin High School, through the old swimming hole of Field's Grove, through Joyce Park Wildlife Sanctuary and into the Merrimack River downstream from the Nashua Wastewater Treatment Plant.

Salmon Brook is a very special Brook. In its course from the headwaters in Groton, MA to its effluent in Nashua, NH it passes through 4 municipalities, 2 different states, and many different attitudes to what the use and protection of its waters should be.

Seeing an opportunity to address these various water uses and other issues within the Salmon Brook watershed, the Merrimack River Watershed Council (MRWC) began a Rapid Watershed Assessment Project (RWAP) of the Salmon Brook in March 1999. This RWAP consists of a team of environmental professionals who identify problems, predict changes, and recommend priority actions to address community planning, sprawl, and watershed management. The MRWC saw RWAP as a great opportunity to influence land protection in the watershed early on since it is still relatively undeveloped.

One component of the RWAP is Stream Team development. The Massachusetts Watershed Initiative (MWI) set aside funds through the Department of Fisheries, Wildlife and Environmental Law Enforcement for watershed groups like the MRWC to organize citizens statewide into Stream Teams. Stream Teams are composed of municipal officials, abutters of the waterway, and any interested citizen that wants to be part of a watershed stewardship program to survey and work to protect the waterway in their area.

In March, the MRWC began contacting local environmental groups, conservation commissions, planning boards in Nashua, Dunstable and Groton to secure their cooperation and support for the formation of stream teams in each town. Through contacts with municipal officials and articles in local newspapers, MRWC recruited stream team volunteers, including the Groton Lakes Association. Stream Team members were trained to conduct shoreline surveys. Shoreline surveys are visual assessments of the stream corridor, including aspects such as land use, stream bank vegetation, and potential sources of contamination. Each team surveyed the section of the waterway in their town.

Stream teams found a range of conditions. At its headwaters in Groton, the waterway is composed primarily of ponds and wetlands in fairly good condition except for development around the major

ponds. These man-made ponds have become heavily eutrophied, filled with weeds. In the mid-reaches of the brook, in Dunstable, the riparian corridor is relatively undisturbed due to a high percentage of protected natural lands, although there is concern about a few isolated potential sources of contamination. Downstream, in Nashua, the character and condition of the brook changes dramatically from semi-rural to urban. However, in spite of extensive development, much of the brook has vegetated stream bank buffers.

After completing the surveys, Stream Team members compiled all the problems and assets and determined priorities for action. Based on these priorities, they created an Action Plan, which includes immediate, short-term or long-term goals. Major recommendations of the Stream Teams includes the following:

Groton:
Identify sources of the excessive eutrophication and weed development in the Groton Lakes and seek funding to correct the problem. Secure community support for this effort. The Groton Lakes Association will expand their monitoring and outreach efforts.

Dunstable:
Continue to conserve open space. Stream Team members are also members of the Conservation Commission and the Planning Board and will be prioritizing Salmon Brook in revisions of their Open Space Plan.

Nashua:
Clean up trash, debris, and yard clippings from the stream and stream banks. Correct erosion problem spots. Educate abutting homeowners about grass clippings and stream-friendly landscaping. The Nashua Stream Team conducted a clean up day and will distribute an educational letter to abutting homeowners.

Special Thanks to our Funders: This project was made possible through grants from Coastal Zone Management, the Massachusetts Riverways Program of the Department of Fisheries, Wildlife and Environmental Law Enforcement, the Parker Foundation, and the Greater Lowell Community Foundation. We would like to acknowledge and thank these programs for their generosity, and for giving us the opportunity to assist Nashua, Dunstable and Groton in working to protect Salmon Brook, an important water resource within the Merrimack River Watershed.

Recommendations and Accomplishments

Although this report covers one watershed, two states and three municipalities, there is one common goal amongst them all--protection for the good of everyone. Whether that be protection for recreational uses, for drinking water or for the future of this watershed, the survey says… PROTECT.

However, there are issues in each town along Salmon Brook related to protection that need to be emphasized. The following is a summary of what each team would like to recommend that each town/city become involved with:

Nashua: The Stream Team in Nashua found a common element while conducting their shoreline surveys: garbage, tree debris, eroding banks and grass clippings dumped along the banks of the Brook. Members of the Stream Team think this is due to homeowners not knowing that the banks of our rivers and streams is not where clippings and tree debris belong. A letter was written by Stream Team member Trish MacDonald (see attachments) to abutters of Salmon Brook regarding what was found during the shoreline surveys and why grass clippings, tree debris, and garbage does not belong in our waterways. The Team would like this letter to be distributed to homeowners with their monthly water bills, with the City of Nashua as a co-signer.

The Stream Team was busy in the Fall of 1999 organizing a clean-up along Salmon Brook as part of the nationwide event, Make a Difference Day. The event was held October 24th at Field's Grove Park, right off Main Street. Local businesses donated food for the event and Mayor Donald Davidson attended the event the show his support. The small, but determined group picked up about 30 bags of trash from around the Field's Grove area that day.

Dunstable: The biggest concern in Dunstable expanding open space protection. The Stream Team found that much of the Brook remained untouched and that protection of these areas is a top priority. Many of the Stream Team members sit on Town boards (such as the Conservation Commission, Planning Board, etc.), and will prioritize Salmon Brook in the revised Open Space Plan.

Groton: The team in Groton is comprised of members of the Groton Lakes Association. For several years now, the Lakes Association has been trying to solve the weed problem in Knops Pond and Lost Lake. Many of the grants that would assist them in addressing this issue need to have municipal support. Community support for ridding the lakes of their weed problem is necessary to move forward.

The Lakes Association has also expressed interest in opening communication lines with the folks from Whitney Pond and the Massapoag Rod and Gun Club to coordinate draw downs and discuss other water quality related issues.

The Association is very active and is determined to succeed in controlling the weed problem in the Lakes. They have begun research on alternative ways to do this and will be raising funds and looking for Town support in accomplishing their goals.

Salmon Brook Stream Team Participants

Nashua Stream Team

Bliss Woodruff
Michelle Champion
Kathy Hersh
Brian McCarthy
Jean Lyons
Trish, Dianna and Melissa MacDonald
Linda Bretz
Bernard and Matt Prindiville
Mike Deschenes
Chris Lizotte
Paul Lizotte
Eric Van Dyke
Donna Dye
Bill Bonnice
Carson and Shari Hovey

Dunstable Stream Team

Joan and Michael Nelson
Judy Larter
Marilyn Pike
Charlie Flynn
Dave Kimpton
Leah Basbanes
Elaine Basbanes
Grace Jeanes
John Callahan
Dominic Yezzi

Groton Lakes Association

Carol Quinn
John Diezemann
Alan Ackermann
Jay Berry
Gerrett Durling
Rich Griffin
Alex Woodle
Bob and Carol Watson
Steve Marranzini
Dave and Carole Jewett
Michael Brandis
Don Haberman
Dot Woodle
Nancy Woodle

Shoreline Survey: Narrative Description

July1999

Salmon Brook-Nashua, NH

Segment 1: State line (MA/NH) north to Ridge Road

Surveyors: Carson and Shari Hovey

Most of Segment 1 was inaccessible. It was very difficult to get close to the shoreline because of very dense vegetation. As a whole, it seemed undisturbed except for areas close to the bridges (Dunstable and Ridge Road) and Pinebrook homes that border Salmon Brook. There were several piles of grass clippings approximately 20 feet from the shoreline from homes in Pinebrook that bordered Salmon Brook. We also found a good size pit, maybe used for fill, 10' deep, 15' across, approximately 25' from shoreline. Location is behind Castleton Estates. Pit contained cinder blocks and tree limbs. Where there were trails, we saw several walkers/joggers.

Segment 2: Sheffield Road to Ridge Road

Surveyors: Kathy Hersh and Brian McCarthy

This segment is an undeveloped area. It is densely wooded. Past beaver activity was apparent. Water is CLEAN. I have kayaked this in the past.

Segment 3A: From behind 90 Searles Road to Sheffield Road

Surveyors: Trish, Dianna and Melissa MacDonald

The brook flows slowly through this segment. Water depths are a few inches to 3 feet plus. Water color is muddy while brook bottom is mucky. We had to portage several times due to low water depth. Fairly good wetland vegetation buffers in place, however there are sections of loosestrife. Tree debris seems to have been deposited by man rather than natural causes. It would be great to remove it. Enjoyed seeing the Blue Heron flying overhead!

Segment 3B: From 8 Monica Drive to behind 6 New Searles Road

Surveyors: Linda Bretz and Jean Lyons

The section we surveyed was the downhill side of the NE corner of Segment 3B, which is more accessible to the Brook than the New Searles Road side. Most of the area had thick brush. Because of the dry weather, the brook was much lower than usual. The water quality seemed good, although siltation was present throughout. Purple loosestrife is beginning to intrude throughout the area-it is prevalent in area P-upstream of New Searles Road Bridge. This bridge is being rebuilt in the fall of 1999. No alga was found throughout. A few downed large trees have blocked the stream around area T below Monica Drive.

Segment 4: New Searles Road to Palisade Drive/Beckman Lane

Surveyors: Michelle Champion and Donna Dye

This segment of the brook flows very slowly, and is surrounded by shallow wetlands for much of its length. There is a short stretch in the middle where the stream channel becomes more distinct with steep banks and the water flow is moderate. The area around the stream is largely residential with a town park on one side of the brook. The banks are well protected with shrubs and grasses and in most places there is a wooded buffer between the homes and the stream. The center of the park near the ballfield is grassy up to the top of the stream bank. Water quality just below this area is poor, with a

Shoreline Survey: Narrative Description

July1999

Salmon Brook-Nashua, NH

Segment 4 continued...
reddish, orangish film on the water. This area is the site of an old landfill and seepage from the landfill may be a contributing factor. There were several places where logs and construction debris had been dumped, obstructing the flow of the stream. Many birds and some small animal tracks were observed. The wetlands have been degraded by the proliferation of purple loosestrife.

Segment 5: From Palisade Drive on Kirkpatrick Park side to south of Route 3
Surveyors: Paul and Chris Lizotte and Eric VanDyke
Segment 5 is stagnant to slow flowing water. There are many muddy wetlands, which are being degraded by purple loosestrife. The stream widens a little after our segment begins. There are many downed and overhanging trees, but they only actually block the stream in one place. There seems to be a pool built within the 75-foot buffer zone.

Segment 6: North of Route 3 off Archery Lane to behind Bishop Guertin H.S. on Alan Street
Surveyors: Bernard and Matthew Prindiville
It begins with a short section bordered by lawns on one side and shrubs/brush on the other. After passing Lund Road, there are no lawns, only shrubs and brush. Then the banks become increasingly wetter, and the shrubs diminish in number. The water, which was clear at first, became muddy, and the stream spreads out into a swamp where there is no clear main channel. Very deep, mud approaching. It was impassible after a certain point. We canoed this segment, but we would not attempt it again in a canoe or on foot. We had to drag the canoe over shallows, over two beaver dams and several trees or clumps of branches. At the stretch between 6 and 7 the mud is over knee deep and it took us over a half-hour to find a channel which led to P2 on the map.

Segment 7: Off Alan Street through wetland to Field's Grove (Field Street)
Surveyors: Paul and Chris Lizotte and Eric VanDyke
Segment 7 is mostly within Field's Grove. There is a huge marsh, which is a habitat for herons, insects, and other birds. The marsh is invaded by purple loosestrife. On the bank someone dumped grass clippings. There is a lot of trash along the banks of the stream. There are also bike trails back there too.

Segment 8A: From Field's Grove to Main Street
Surveyors: Bliss Woodruff and Bill Bonnice
This is the water backed up from the 12' (approx. high dam just above Main Street. IT could be a beautiful little pond but the water is brown and unhealthy looking and the back of Steven King tire is unsightly. Many of the houses are built very close to the edge, much closer than the 74'buffer required today. The bank at the end of Rochette Avenue is about 20' high and covered with lush vegetation.

Shoreline Survey: Narrative Description

July1999

Salmon Brook-Nashua, NH

Segment 8B: From the 12' diameter pipes coming from Globe Plaza to bridge at Allds Street

Surveyors: Bliss Woodruff and Bill Bonnice

We heard that they cleaned up this section of the stream two years ago (mainly opening the falling timbers and trees that made it impossible to navigate on the stream. At this time of year it looks too shallow to canoe). I was appalled by the number of shopping carts (about 17), tires (about 11) and other junk in the stream. This section is a nice, verdant area and has potential to have walking paths along it, which would greatly enhance the attractiveness of the center of town.

Segment 9: Joyce Park off of Allds Street to the meeting with Merrimack River

Surveyors: Angela Rapp and Mike Deschenes

This portion of the Brook begins at a very beautiful, but relatively unknown park, Joyce Park. We kayaked across the fingers in this section and hiked around the south side of the Brook, which, at this point, becomes a pond. There is a lot of purple loosestrife on one of the islands in the pond. LOTS of wildlife: sunfish, bass, painted turtles, a great blue heron. There came to a point at the Wildlife Sanctuary that both of us had to boat. There is a big fence across the Brook, but not touching the water, so we boated under it. There was another big pond, which led to the IMPCO parking lot where the Brook is paved over for a couple hundred yards. At the culvert on the opposite side, there was a lot of orangish rust covering the south bank of the Brook. After this section, which at the time we weren't sure how to gain access to since there were tall banks and the Brook was fenced off, we took another trip at a later time to the mouth of the Brook. There was a lot of duckweed, but besides that it was a wide Brook at that point.

Shoreline Survey: Narrative Description

July1999

Salmon Brook and Massapoag Pond-Dunstable

Segment 1: Tyngsborough/Dunstable line at Massapoag Pond to lower dam-east shore

Surveyors: Judy Larter and Marilyn Pike

This segment is a ponded area of the brook between two dams. A former children's camp makes up nearly 60% of the east shoreline; it currently is undeveloped land with one residence. The remaining shore is summer cottages, a majority of which have been converted to year round. Nearly all of them required retaining walls to control erosion and provide beach area. It is a popular fishing spot and for water sports. If the remaining open space is developed, it will have severe impacts. The Massapoag Rod and Gun Club does a weed and water quality analysis annually.

Segment 2: Groton/Dunstable line at Massapoag Pond to lower dam-west shore

Surveyors: Diana Cosgrove and Charlie Flynn

Segment was western shore of Lake Massapoag within Dunstable. This area is 50% natural and 50% residential. No apparent pollution from residences. Some washout at Camp beach, likely from heavy showers of previous night. Three small pipes seen-guess two are suction and one a patio runoff drain. Segment good overall.

Segment 3: Lower dam to Jack's Bridge-Route 113

Surveyors: John Callahan and Domenick Yezzi

This body of water is primarily a beaver pond with extremely limited access. There is blockage at both ends of the pond. Right below the dam, the blockage is due to naturally fallen trees and debris washed over the dam. The blockage near Jack's Bridge is the beaver dam. Overall the pond is clean and primarily covered with lily pads, some of which have very thick and old roots. The bottom is mainly organic debris except where water is moving through narrow channels and here it is sandy. There are no visible pipe outlets or runoff. The water depth varies from less than one foot to about five feet in the deepest channel. Purple loosestrife, cattails and other marsh plants ring the shore. Except for steeper embankment along the first lower channel, the pond is surrounded by marsh and apparently dead from intrusion of water. Great wildlife here: red winged blackbirds, swallows, damselflies and dragonflies, sunfish, bass, frogs and turtles can all be seen here. The pond is mostly untouched by development, although some newer houses along the southeast bank of the main body of water are partially visible in fall and winter. However, a buffer still exists.

Segment 4: Route 113 (Jack's Bridge) to Main Street

Surveyor: Dave Kimpton

Salmon Brook flows under Route 113 in Dunstable through a pipe large enough for a canoe to pas through with passengers seated but slightly bent forward. Immediately after passing under the road you are confronted by 300 yards of trees which have been torn from the bank by an ice storm in 1998 and have fallen from one side of the stream to the other. This has slowed the flow of water down so much that the former channel has been silted in. The pools have filled with organic debris and the water barely moves.

Beyond this area, Salmon Brook is back in a channel and quietly flows through pine forests with barely visible housing on one bank. The entrance of Hauk Brook is through a marshy area. At this

Shoreline Survey: Narrative Description

July1999

Salmon Brook and Massapoag Pond-Dunstable

Segment 4 continued...
point there is no evidence of man other than distant traffic noise. The Brook twists and bends along a pasture on the left bank and marshlands on the right with lots of purple loosestrife. In the Spring, cattle wander right to edge of the Brook, as there is no fencing.
Canoe progress ends at Main Street as the bridge is too low to go under and the steep bank makes for tough going to get out of the water.
An unusually large number of Canadian Geese live here and many winter over in this area. A variety of ducks were spotted as was a Great Egret and LOTS of dragonflies.

Segment 5: Main Street to MA/NH border (Arch Bridge Conservation Area)
Surveyors: Leah and Elaine Basbanes and Grace Jeanes
The brook flows very slowly in Segment 4. The brook is heavily vegetated with a narrow open channel in the middle that is canoeable. There is no development along this segment, therefore it is very natural, great wildlife habitat and well protected. Encountered no pipes, areas of erosion except at Main Street and Arch Bridge. Riverfront area along both sides is undisturbed forest that is privately owned. We saw no trash to speak of, no alga blooms, and no significant human disturbance. It's a beautiful area and efforts here should be towards preserving it as it presently is.

Shoreline Survey: Narrative Description

September 1999

Martin's Pond, Lost Lake, Knops Pond, Whitney Pond and Cow Pond Brook-Groton

Segment 1: Martin's Pond, along Martin's Pond Brook to Route 40 culvert

Surveyors: Garrett Durling and Bob Watson

Martin's Pond is a man-made pond whose outlet, Martin's Pond Brook, winds its way through privately held land and empties into Lost Lake. The Pond surface is between 50% and 70% covered by a variety of aquatic vegetation. Until 2 days before our survey, the brook was dry. The brook crosses Martin's Pond at Martin's Pond Road where it enters a nearly continuous marsh area that extends to Route 40.

Covering vegetation extends from Martin's Pond to Martin's Pond Road and a little beyond. The entire area is clean and litter free. A large new development exists on the South side of Martin's Pond Road, but there is no evidence of erosion crossing the road to the wetland. Water is covered with duckweed but is very clear, even after heavy rain.

Segment 2: Route 40 to Lost Lake on Martin's Pond Brook

Surveyors: Rich Griffin, Jay Berry, and John Diezemann

The river is overgrown and not many people use this area. There is visible evidence of beaver and muskrat in the area. Most of the land abutting the brook is undeveloped/unprotected land. Good buffers.

Segment 3: Lost Lake from the wooden dam to the boat launch

Surveyors: David and Carole Jewett

Most of the water is 4-6 feet deep. There is a hole of 14-15 feet in front of the outlet dam. The islands are eroding fast…30-40 years ago there were 4 islands. Water temperature is much warmer than Knops Pond-mid to upper 70s. Supports warm water fish-bass, pickerel and sunfish. Islands need shores reinforced. Dredging may be only weed solution.

Segment 4: Knops Pond from southern end to the wooden dam

Surveyors: David and Carole Jewett

Main Pond runs to 24 feet deep. Water is clear with a surface temperature of 69-73 degrees. Many of the camps have been converted to year round homes in this area in the past 10-15 years.

Segment 5: Lost Lake outflow to end of Whitney Pond

Surveyors: Dot, Nancy, Alex and Linda Woodle

There is a short segment from Lost Lake dam to delta entering Whitney Pond. Fallen trees, culvert under Lost Lake Drive, open water and then deltaic vegetation as outlet stream braids through delta into Whitney Pond. Whitney Pond has two outlets with similar vegetation as at inlet (sections A, B and C). Emergent weeds in shallows at edges and no weeds visible where lake deepens. Appears to be a kettle surrounded by eskers on 3 sides of pond.

A. Delta-mixed deciduous with wall of water willow (decodon verticillatus) in front, pickerel weed, spatter dock and white water lilies, some purple loosestrife. Resident tells how quickly willow is expanding.

Shoreline Survey: Narrative Description

September 1999

Martin's Pond, Lost Lake, Knops Pond, Whitney Pond and Cow Pond Brook-Groton

Segment 5 continued...
B & C. At each outlet, same as above
D & E. Lily pads about 8-foot band from the shore and then depth increases dramatically. Purple loosestrife, lilies, and water willow.

Segment 6: Hoyt's Warf Road to Massapoag Pits on Cow Pond Brook
Surveyors: Alan Ackerman, Don Habermen, and Michael Brandis
Segment 6 flows consistently from Hoyt's Warf Road to an impoundment above Lake Massapoag. It has remained relatively unmolested by the residential development along its western banks and the recreational fields on the eastern banks. The gravel operations have yet to truly entrude on the river as a distinct bank has been left in most areas between the river and any activity (at least 100 feet wide in most areas). From Hoyt's Warf Road to at least midway past Bridge Street, the stream is marked by extensive beaver activity with multiple dams and snags. While the main channel is evident, it should be noted that the Cow Pond Brook flood plain is about 2/5ths under water. Little evidence of fish was found, although other aquatic life might be found with closer examination. This section of the stream is ideal for protection, as its shores are relatively "natural" and currently undeveloped.
P.S.-Stream is highly shaded by streamside tree growth.

Segment 7: Groton shore of Massapoag Pond
Surveyors: Carol Quinn and Steve Marranzini
Massapoag Pond has few houses, good vegetation on most of the shoreline, downed trees (mainly pine, birches and oaks), signs of purple loosestrife. Few birds, no turtles or fish seen. Beaver dam seen and beaver heard. Water seemed somewhat murky and weedy in certain areas (not as bad as Lost Lake and Knops Pond). A sign at the boat launch warned of mercury contaminated fish.

Salmon Brook Priority Sheet for Nashua *August 1999*

Segment	Problems	Assets	Priorities for Action
MA/NH border (off Middle Dunst. Rd) to Ridge Road-Hoveys	-grass clippings in Pine Brook -partially buried 1" pipe from home next to Ridge Rd. bridge -trash at the bridges	-generally undisturbed area except at bridges -potential access via public easements, but easements are inaccessible	-make easements accessible for public use -public education about grass clippings
Ridge Rd to Sheffield Rd-Kathy Hersh and Brian McCarthy	-impediments to kayak and canoe (trees and beaver activity)	-Camp Doucet (Boy Scout) -Marsh and wetland area	
Sheffield Road to Kathy Drive the MacDonalds	-scattered loosestrife -minimal trash -tree debris -what happened with the pipes mentioned in survey?	-fairly good buffers	-clean up of trash and tree debris
Searles Road to crossing w/New Searles Road-Jean Lyons and Linda Bretz	-Searles to Monica Drive not done -New Searles Road homeowners had dumped, or allowed dumping of large boulders -violation-someone withdrawing from the Brook for their pool -purple loosestrife -yard scraps	-good habitat for wildlife -ok for canoeing -most homeowners are conscious	-get the pump out of the Brook and talk with the landowners -have homeowners remove yard scraps -remove downed trees
ew Searles d thru Kirkpatrick Pk to end (Beckmann Ln.)-Donna Dye and Michelle Champion	-flat muddy area has oily bright orangish-red-brown slick with an oily sheen -blockage by cut logs, 2x4s and accumulated brush -large sheet of plywood in stream -dumping of stumps and building debris over the bank at 8 Shady Ln. -barbed wire blocking path along bank at 20 Shady Ln. -purple loosestrife throughout seg.	-reasonably good habitat for most of the segment-lots of wetlands, good diversity -informal trail along bank below the ballpark (blocked by barbed wire)	-locate cause of oil and clean up -remove man-made debris blocking the stream at both locations -educate homeowners about dumping in wetlands -check property boundaries at site of barbed wire and see about getting it removed-potential trail from park -control purple loosestrife in wetlands
End of Kirkpatrick Park across Harris Rd to Route 3-Lizottes and Eric	-oil sheen in middle portion of Kirkpatrick Park -trash -purple loosestrife		-clean trash by New Searles Road
North side of Route 3 off Archery Ln. across Lund Rd to end of Bishop Guertin H.S. t-ndivilles	-oil sheen seen at point 4 on map (in Degasis Park)	-good habitat, wildlife species -wetlands in majority of segment	-what's the oil sheen?

Salmon Brook Priority Sheet for Nashua *August 1999*

Segment	Problems	Assets	Priorities for Action
Hassel Br. meets Salmon to Chestnutt St. and Fields Grove-Lizottes /Eric VanDyke	-purple loosestrife in wetlands -path next to Field's Grove is trashed -erosion due to lack of vegetation -grass clippings along bank	-great blue heron	-clean up trash on path
Chestnutt St. at Field's Grove thru pond to Main St.-Bliss Woodruff and Bill Bonnice	-two big fallen willows behind Osco Drug -unsightly trash (car tires, floating cans and bottles) -rusty car body protruding from the bank behind Steve King Tire -brown scum near Field's Grove (looks and smells like human excrement) -film of algae down center of pond	-area used to be a swimming hole-if it were cleaned up and if the water were healthy, it would be a delightful spot	-brown scum near Field's Grove and other places note: scum right below Field's Grove had lots of little white specks about 1/32" in diameter??? -Film of algae on surface of pond
Main Street to Allds St. bridge crossing the Brook-Bliss and Bill	-sewage or scum smelled -several backwater pools contained rainbow colored slick on surface -stream is littered with shopping carts (17) and tires (11) -flow is retarded in several spots due to fallen trees	-excellent potential for a walking path on one or both sides of the stream-access is available from back side of mall	-check scum to see if it comes from sewage being put into stream -investigate possibility of making a path along the stream
Allds St. bridge off Fifield thru Joyce Park to Sewage Treat plant-Mike Deschenes and Angie	-Rust color coming from pipe that redirected Brook by IMPCO-whole southern bank was rust colored -lots of purple loosestrife -fence inhibiting people from using half of pond area (past wildlife sanctuary	-GREAT trail access -good habitat and diversity of plants and animals (beaver, lots of fish, turtles, great blue heron) -some of segment is a wildlife sanctuary	-rust needs to be investigated for pipe maintenance or replacement -access should be granted throughout the wildlife sanctuary

Salmon Brook Priority Sheet For Dunstable August 1999

egment	Problems	Assets	Priorities for Action
Massapoag Pond (on east bank) from YMCA downstream to dam-Judy Larter and Marilyn Pike	-Overdevelopment -Wooden retaining wall -Weeds	-Not a lot of ducks	-Public access -Investigate wooden retaining wall
Massapoag Pond (on west bank) from YMCA to dam-Diane Cosgrove and Charlie Flynn	-The camp acreage looks vulnerable to development. Could be publicly accessible destination-far better than residential area. -Are the sewage systems on the NW shore monitored? Residential area looks tight. Not enough area for leaching fields, etc.		-Camp Massapoag-YMCA???? -Tight development, monitoring sewage systems?
Lower Massapoag from the dam to Route 113-Dom Yezzi and John Callahan	-Purple loosestrife is very prevalent -Area immediately below dam could use a cleaning up	-Good wildlife habitat -Blue heron trying to make a comeback	-Leave as is –Garbage?
Route 113 rth to Main reet-Dave Kimpton	-Trees down blocking flow of water and making passage by canoe impossible	-Easily accessible, but remote feeling -Great bird cover -Great extension of canoeable water if previous problem is eliminated	-Cut a channel through the trees for canoe accessibility
Main Street north to State Line-Leah and Elaine Basbanes and Grace Jeanes		-Good habitat -A lot of wildlife -2 canoe access areas -Walking trails along banks -Most of the west side of the Brook in this segment is conservation land -unspoiled, beautiful area	-Need to identify landowners on unprotected land and possible get it listed under the conservation lands -Need to maintain the unspoiled beauty of the area

Lakes and Ponds in Salmon Brook Watershed
Groton October 1999

Segment #	Problems	Assets	Priorities for Action
Martin's Pond downstream to Route 40-Bob Watson and Gerrett Durling	-trash barrel at Martin's Pond Road	-very little, if any, human intervention	-remove trash barrel
Route 40 along Martin's Pond Brook to Lost Lake-Rich Griffin, Jay Berry and John Diezemann	-duckweed at the mouth of Brook to Lost Lake	-untouched habitat	
Lost Lake and Knops Pond-David and Carole Jewett	-weed issues -eroding islands-banks are unstable -islands popping up in the middle of the lake	-great species diversity	
Stream connecting Whitney Pond to Lost Lake-Nancy Dot, and Alex Woodle and Lynda Moore	-deltaic deposits talking over private residence beach area in past few years-want safe swimming place-Location A -wildlife around beaches makes it unswimmable	-very little motorboating-mostly canoeing and kayaking -great wildlife habitat -protected land on north side of pond	-residents need relief to ensure safety at their beaches and access for boating -residents want to dredge and/or clean certain areas which are continually encroaching on their properties-financial assistance and permission needed
Cow Pond Brook from Hoyts Wharf Rd dowstream-Alan Ackerman, Don Haberman, and Michael Brandis	-beaver activity was very noticeable from Hoyt's Warf Road on downstream -some trash was evident by Bridge Street bridge	-proximity to town for recreation/parks	-leave area as is to revert to "natural" state (protect it from development)
Massapoag Pond (west bank at YMCA Camp-Steve Marranzini and Carol Quinn	-random purple loosestrife -color of water indicates runoff problems -mercury in fish	-most of Groton side of Lake is untouched -Camp Massapoag seemed to be treating environment good	-coordinate with Massapoag Rod and Gun Club for draw downs

Action Planning Matrix for Salmon Brook in Nashua

Immediate Action

Report:

To Conservation Commission

1. Segment 3: Water withdrawal from pool at 28 New Searles Road-Jean Lyons

To Zoning Officer

1. Segment 4: Dumping of debris (stumps, building materials) at 8 Shady Lane-Kathy Hersh
2. Segment 4: Barbed wire fence blocking entrance/exit to Brook at 20 Shady Lane-Kathy

To Board of Health

1. Segment 8A: Human sewage contamination at end of Chestnutt Street-Kathy

Investigate:

1. Rusty pipe at outflow of the Brook on the southeast bank after IMPCO-Brian McCarthy and Kathy

Research/Follow-up:

1. MRWC will get a brochure of yard clippings and their affect on rivers to Stream Team and City of Nashua
   a. This brochure will go in a mailing to all abutters and as a letter to the editor

Short Term Action

Recheck some areas to look for changes:

1. Segment 4: Oily sheen/rust color seen at outflow at Kirkpatrick Park-Michelle Champion
2. Segment 9: Check out ownership of fence near IMPCO and have someone (Community Development?) ask them to take it down-Kathy

Education:

1. Informational mailing about results of the shoreline survey to go to abutters of the Brook-Trish MacDonald
   This mailing will:
   a. Announce the Clean-up event (see below)
   b. Provide information about how to be a good stream/river neighbor
2. A mailing will also be going out to the general public (hopefully along with the water bills) including:
   a. Update on purple loosestrife, its affects, and what people can do about it
   b. Affects of dumping debris into streams-raise awareness
   c. Talk with Pennichuck about working with them on this educational piece

Clean-up:

Team will begin organizing a clean-up along the Brook to raise awareness of trash and other debris and their affects on water quality. Target areas (clean-up will not be limited to these areas however):

1. Trash and tree debris off Sheffield Road, Kirkpatrick Park, New Searles Road, along path next to Fields Grove and tires, cans, bottles and shopping carts near Field's Grove and Globe Plaza

The clean-up will be done either in conjunction with "Make a Difference Day" or the Coastal Clean-up in Sept Chris Lizotte will be targeting free manual labor as well as DPW assistance.

Other Activities:

1. Complete shoreline survey of Section 3A from Searles Road to Monica Drive-Linda Bretz and Trish

Action Planning Matrix for Salmon Brook in Nashua

Long Term Action

Conservation Commission:

1. Follow up on public easements along Salmon Brook
2. Work on revising Open Space Plan-Pennichuck as a sponsor?
3. Research water withdrawal issues-pros and cons
4. Informational mailing with water bills in the Spring as well

City of Nashua:

1. Work on Open Space Plan
2. Purchase land west of Salmon Brook and south of Sheffield Road
3. Leaking pipes under Globe Plaza

Planning Commission:

1. Research water withdrawal issues-pros and cons

Action Planning Matrix for Salmon Brook in Dunstable

Immediate Action

Report:
To Conservation Commission
1. Segment 1: Wooden retaining wall on Massapoag Pond-Judy Larter
2. Segment 3: Ownership of illegal dump off of Route 113-Leah Basbanes and Judy

Research/Follow-up:
1. Contact Massapoag Rod and Gun Club for their weed survey

Short Term Action

Education and Clean-up:
1. Trash clean-up and awareness at Lower Massapoag Pond-Dave Kimpton

Water Quality:
1. Coordinate dates for benthic macroinvertibrate testing on Salmon Brook at the following locations:
   a. Arch Bridge Conservation Area
   b. Jack's Bridge (Route 113)
   c. Below Dam
2. Coordinate dates for Water Quality Monitoring on Massapoag Pond and Salmon Brook at following locations:
   a. On West bank of Massapoag (outlet)
   b. Main Street crossing of Salmon Brook

Watershed Related Activity:
Coordinate a day for all four municipalities (Groton, Dunstable, Nashua and Tyngsborough) to meet and discuss the Salmon Brook watershed

Long Term Action

Public Awareness:
1. Create more public awareness for Massapoag Pond through the Open Space Plan

Action Planning Matrix for Groton Lakes

Immediate Action

Removal:

1. Trash barrel that holds road salt at Martin's Pond Road-Bob Watson

Research/Follow-up:

1. Call Laura Mattei about conducting soil samples of the islands that are popping up in the Lakes-John Diezemann
2. Call Mary Ann Penniman (DEP) about their involvement in the Lakes' weed problems-Steve Marranzini

Short Term Action

Water Quality:

1. Get water quality data for Sargisson Beach from the Conservation Commission

Watershed Related Activity:

Coordinate a day for all four municipalities (Groton, Dunstable, Nashua and Tyngsborough) to meet and discuss the Salmon Brook watershed-MRWC

Long Term Action

Contacts/Communication:

1. Create communication links with Massapoag Rod and Gun Club and Whitney Pond folks

Merrimack River Watershed Council

– for the enjoyment of people, the benefit of its communities and the health of the ecosystem

July 12, 1999

Dear Neighbor of Salmon Brook,

Would you like to go for a walk…a streamwalk? The Merrimack River Watershed Council along with citizens of Nashua are combining efforts to form a Stream Team to protect and restore the health of Salmon Brook. As a landowner along Salmon Brook, we would like to invite you to join us in our efforts and to participate in a visual survey of the Brook.

The Shoreline Survey will be conducted Saturday, July 24th to assess the condition of the Brook and its tributaries. Training will be provided on Thursday, July 22nd at 7pm to learn the necessary components of an effective Shoreline Survey. On the day of the survey, volunteers will access the Brook via road crossings and then walk along the bank, observing important instream and streamside characteristics. Although care will be taken not to traverse any private property, it may be necessary to walk along the Brook's banks in certain areas to avoid trampling wetland habitat.

A lot of work went into compiling a list of landowners along Salmon Brook throughout Nashua. However, there has been quite a bit of development in the Nashua area, so we may not have covered everyone. For this we apologize. If you know of anyone who did not receive this letter, please share this with them. On same note, if you know someone who would like to take part in the Salmon Brook Stream Team, please share this letter with them as well.

If you have any questions or concerns about the Shoreline Survey program, please contact Angela Rapp or Laura Mattei at 978-681-5777. If you would like to participate in the survey and become part of the Stream Team, please give us a call at the above number and/or join us for the Shoreline Survey Training on Thursday, July 22nd from 7-9pm at the United Methodist Church, which is located at 154 Main Street in Nashua (please park in the rear).
Thank you for your time, and we hope to work with you in the future.

Sincerely,

Angela J. Rapp
Stream Team Coordinator

STREAMWALK

WITH US!

JOIN THE SALMON BROOK STREAM TEAM

Come to the Shoreline Survey!

- When: Sunday, July 25th, 1999
- Time: 8am-12pm
- Where: Dunstable Town Hall Community Room
  511 Main Street, Dunstable

Come and learn about your streams and rivers! Become a guardian of your waterway! Get outside and have FUN!

For information call Angela Rapp or Laura Mattei at the Merrimack River Watershed Council at 978-681-5777.

...oreline survey
NASH... United Methodist Church, 154 Main St. The Merrimack River Watershed Council holds meeting to discuss volunteer opportunities for conducting Salmon Brook shoreline survey, **July 12**, 7-9 p.m. For information call (978) 681-5777.

The Telegraph

Monday, July 12, 1999

Mass. group to survey Salmon Brook

By DAVID BROOKS
Telegraph Staff

NASHUA – A Massachusetts-based non-profit group interested in the health of the Merrimack River will be moving over the state line this month to conduct a shoreline survey of Salmon Brook, and is looking for local residents to become part of the "stream team."

"We need people to do a visual survey of (the river)," said Angela Rapp, stream team coordinator for the Merrimack River Watershed Council, a 23-year-old non-profit group.

"We teach them how to identify purple loosestrife (an invasive weed), what erosion looks like, what is the difference between natural foam and foam that's coming from detergent – things like that," she said.

The two- or three-hour survey, which involves two-person teams working either on foot or in boats, will run July 24.

The results will be used to assess the health of Salmon Brook and develop ideas for improving it, said Rapp.

> A watershed is an area of land that drains to a particular body of water. The Merrimack River watershed drains 5,010 square miles from the White Mountains to central Massachusetts, making it the fourth largest watershed in New England.

An organization meeting will be held tonight at 7 p.m. at the United Methodist Church, 154 Main St. Everybody is invited to attend, or to show up at a training session July 22.

Nashua Boy Scout Chris Plizotte is helping organize the stream team as part of his Eagle Scout project, Rapp said.

A watershed is an area of land that drains to a particular body of water.

The Merrimack River watershed drains 5,010 square miles from the White Mountains to central Massachusetts, making it the fourth largest watershed in New England. It includes 17 major "subwatersheds" that drain into the Merrimack, including those of the Nashua and Souhegan rivers as well as Salmon Brook, and Beaver Brook in Hudson.

Salmon Brook starts in Groton, Mass., and passes through Dunstable before emptying into the Merrimack River near the Nashua Sewage Treatment Plant.

It travels through some heavily developed areas of south Nashua, passing by New Searles Elementary, Elm Street Junior High and Bishop Guertin High schools.

The Merrimack River Watershed Council, headquartered in Lawrence, Mass., has done similar "stream team" analyses of other small rivers that empty into the Merrimack, including Bare Meadow and Cobbler brooks, but this is the first time they have moved into New Hampshire.

It won't be the last, however: The group is planning to open a Manchester office later this year.

It won't be alone. A number of other volunteer-driven organizations exist to watch over the health of the state's bodies of water.

They include the Souhegan River Watershed Association, which is best known for its warnings about occasional build-ups of E. coli bacteria during the summer months, and the Nashua River Watershed Association.

The Merrimack River Watershed Council, Rapp said, is part of a larger Massachusetts initiative designed to protect and improve the 27 main watershed areas in the state.

"The Massachusetts Watershed initiative ... put guardianship of the waterways back into the hands of citizens," she said. "It's a bottom-up approach."

For more information, call the Merrimack River Watershed Council in Lawrence, Mass., at (978) 681-5777, or check its Web site (www.merrimack.org/).

□□□

David Brooks can be reached by calling 249-3336 or by e-mail at brooksd@telegraph-nh.com.

Adopt a Stream

Shoreline Survey Field Data Sheet

River: Salmon Brook Segment Begins: Behind 90 Searles, Nashua Segment Ends: Sheffield Dead End, Nashua
Date: Aug. 4, 1999 Today's Weather: Dry 80's Weather over past 48 Hours: Dry 80's
Observers' Names: Trish, Dianna & Melissa MacDonald

If you take photographs, mark the location on the map, and write it on the backs of the photos, along with date. Be specific (reference nearby road or house), so that people can compare later photos.

INSTREAM CONDITIONS

Stream bottom

1. What is stream bottom made of? *(mark from 1=most typical to 6=least typical)*
   - ____ Organic debris (leaves, twigs)
   - ✓ Silt (mud)
   - ____ Sand (1/16 to 1/4")
   - ____ Gravel (1/4 - 2")
   - ____ Cobbles (2 - 10")
   - ____ Boulders (> 10")

2. What color is the stream bottom? *(circle one)*
   Black (Brown) Dark Orange/Red Yellow Sandy Gray Other ________

Water

1. What color is the water? *(circle)* Cloudy Tea Milky (Muddy) Other the color of melted chocolate behind 90 Searles
2. What is the water odor? *(circle)*
   None, (Rotten eggs) (Musky) Fishy Oily Ammonia Other ________
   one location on Sheffield
3. Problem areas. *(checkmark, describe location and cause, if apparent. *Locate on map.)*
   - ___ Oily sheen or smell
   - ___ Sewage: smell, milky color, toilet paper
   - ___ Foam or scum *(describe. Does a stick break it up?)*
   - ___ Fishy odor or fish kill
   - ✓ Floating garbage tire, plastic jug, construction cone, plywood
4. How deep is the water? *(circle)* Less than 1' More than 1' (More than 2') More than 3'
5. How does the water level compare to normal for this time of year? *(circle)*
   Normal Higher (Lower) Don't know If very high or low, can you tell why? drought
6. Is the water flowing..... *(circle)* Quickly Slightly (Almost still)
7. Number of pools no Number of riffles — Don't know ____
8. Is stream flow blocked by...*(circle and *locate on map.)* (Trees) Trash Large objects ________
   throughout segment

Vegetation

1. Are there areas of extremely dense or clogging aquatic vegetation in any section? *(circle)* (Yes) No
   * *If yes, locate on map and describe cause, if obvious.* grass growing in water
   Species, if known *(circle)* Duckweed Water chestnut Other ________
2. Are there areas covered with algae? *(circle)* no stream bed around pipes
   * *If algae seems abnormally heavy, *locate on map.*
3. Are there wetlands? *(circle, *locate on map.)* (Yes) No If yes, are they degraded by... *(circle)*
   Phragmites (Purple Loosestrife) Fill (Blockages)* Ditches
   Sediment Disturbed banks *(Pipes) (Trash)° Other ________

* primarily trees
* 2" in diameter from property ... [illegible]

STREAM CORRIDOR CONDITIONS

Stream Bank and Land Use

1. Do trees and shrubs overhang the stream and provide shade? *(circle)* (Yes) No
   If yes, estimate what percentage of the bank is shaded. 50 % (none resident side)

2. What are the stream bank conditions? *(circle. Put a star* next to the most common.)*
   (Eroding) (Cleared/cut) Buildings/pavement Shrubs/brambles Park with isolated trees
   (Lawns) Dense forest Riprap/channelized Beaches * (Wetlands/marsh)

3. Are there places that have fill or clear-cutting? *(circle)* (Yes) No small area behind 47 Searles
   If yes, mark locations on map as fill (F1, F2, F3, etc.) or clear-cutting (CC1, CC2, CC3, etc.).

4. What are the land uses visible from the river? *(checkmark, and circle the **dominant** land use type.)*

___ Industrial	___ Parking lots	___ Golf courses
___ Commercial	___ Roads	___ Protected/conservation land
(extensive rose gardening) ✓ Agricultural	___ Landfills	___ Undeveloped/unprotected land
✓ Residential	___ Railroads	___ Wastewater treatment plants
___ Park/ballfields	___ Junkyards	___ Other *(describe)* _____

5. Do you see runoff from any of the following? no *(circle. If runoff is significant, *locate on map.)*
   Manure Pet / goose droppings Lawns Construction Plowed fields
   Sewage Parking lots Roads Bridges Other _____

Pipes: *Please fill out separate pipe survey and mark locations on map as P1, P2, P3, etc.*

Trash: *Describe any potential cleanup areas. *Locate on map.*
Light trash detailed earlier, trees limbs blocking boat way.

Recreation

1. Is there designated public access to the stream? Is it appropriate for... *(circle and *locate on map.)*
   Canoeing (Fishing) Swimming Walking Bicycling Other _____
   *If there are areas which are **informal or potential** access points, describe and *locate on map.*
   at Searles Road bridge

2. What activities do people use the stream and its banks for?
   Canoeing (Fishing) Swimming Walking Bicycling Rollerblading
   Rowing Sailing Motorboating Other _____

WILDLIFE

Aquatic Species

1. Fish or evidence of fish? *(describe)* Lots of perch but we rarely see a native.
   Estimate number _____. *If possible, describe species & size.* _____

2. Other forms of aquatic life? *(circle, identify species if known)*
   (Aquatic insects) (Turtles) Snails Salamanders Mussels Clams Other _____

Land Species

1. Animals or evidence of animals? *(circle)* (Beaver) Muskrat Otter Other _____

2. Birds? *(circle)* (Herons) (Mallard ducks) Wood ducks (Canada geese) Other _____

3. Do you know if there are rare & endangered species of plants or animals in your segment?
   If so, identify. I'm not sure.

* We saw a blue heron fly overhead while surveying! We've seen them

Adopt a Stream

Shoreline Survey Summary Sheet

River: Salmon Brook Segment Begins: 9[illegible] Se[illegible] Rd. Segment Ends: Sheffield Road End
Date: Aug. 4, 1999 Today's Weather: Dry 80's Weather over past 48 Hours: Dry 80's
Observers' Names: Trish, Dianna & Melissa McDonald

These sheets are designed to give the "big picture" of your segment. They provide the basis of the narrative description of segments in the Shoreline Survey report.

NARRATIVE DESCRIPTION

SAMPLE 1: The river flows slowly through this segment. The banks on one side are eroded, with park land behind it. On the other side of the river, the banks have cement walls, industrial buildings and parking lots. There was a marsh at the lower end. A small stream came into the river, and the water quality seemed worse after it entered. Bits of oil floated on the water, and the stream smelled like asphalt. There were a few gulls in the industrial section, and there were turtles, a muskrat (?) hole and a great blue heron in the wetlands/marsh.

SAMPLE 2: Segment 2 flows quickly through conservation land, with several small riffles. We saw several anglers along the banks. There were many downed trees in the stream, which provide good habitat for fish. Vegetation along the stream is thick, second-growth forest with an old dirt road providing good access for walking or mountain biking. There are several old appliances in the river near the Rt. 20 bridge.

Describe your segment in a paragraph:

The brook flows slowly thru this segment. Water depths are a few inches to 3+ feet. Water color is muddy while brook bottom is mucky. We had to portage several times due to low water depth. Fairly good wetland vegetation buffers in place, however there are sections of loosestrife. Tree debris seems to have been deposited by man rather than natural causes. It would be great to remove it. Enjoyed seeing the Blue Heron fly overhead!

Summary questions:

1. Has the Shoreline Survey changed your attitude toward the river?

[illegible] given me a greater appreciation of the brook.

2. Do you use the river regularly for recreation?

No, but I would if debris was cleared making a boat [illegible].

3. How would you change the way your community uses or thinks about the river?

Being involved and [illegible] what we're doing [illegible] raises an awareness and hopefully interest (to get involved) in others!

Adopt-A-Stream

Shoreline Survey: Priorities for Action

Look back at your Field Data sheet and include your observations. The information from these sheets will be used to develop the Action Plan.

Problems found in your segment, such as:	Assets found in your segment, such as:	Priorities for action:
pipes discharging in dry weather erosion, runoff, trash, dense algae water quality problems (odor, color, oil, foam, sewage) degraded wetlands (phragmites, loosestrife) other problems ***(describe, give location)***	good habitat, wildlife species businesses or landowners using the river (in a friendly way) recreational access (canoe, trails, parks) potential recreational access potential parkland/conservation land ***(describe, give location)***	***(List items from problems/assets columns that you feel need more work.)***
1. [illegible] **2.** [illegible] trash 3. Tree debris	**1.** Fairly good buffers **2.**	**1.** Clean up of trash and tree debris **2.**
[illegible]	[illegible] about	house lots. Due to
[illegible]	[illegible], passage is	difficult.

Adopt a Stream

Shoreline Survey Pipe Survey

River: _____ Segment Begins: _____ Segment Ends: _____
Date: _____ Today's Weather: _____ Weather over past 48 Hours: _____
Observers' Names: _____

Pipe # *(locate on map)*	Time	Pipe's material & condition	Pipe size / Amount & rate of flow *(is it submerged?)*	Color of flow	Odor of flow	Sand delta *(Y/N)*	Proximity to boat launch?	Comments *(Dense algae? Boom or grate? Trash? Other notes?)*
Sample #1	9:33 Am	Concrete good shape	constant moderate flow 1' diameter	red-brown	fetid	N	no boat launches	orange floating boom with some small floating trash (nothing gross)

October 1999

RE: Results of Salmon Brook Survey and Clean-up Day Planned

Dear Neighbor:

As you may already be aware, a survey of Salmon Brook was conducted on July 24, 1999. This effort was spearheaded by the Merrimack River Watershed Council (MRWC) and implemented by a group of local volunteers. Prior to conducting the survey a group of volunteers, otherwise known as the "Stream Team" participated in an educational program, which encompassed the components of a shoreline survey and the factors or conditions that contribute to good and bad water quality.

The shoreline survey focused on the following areas:

Condition of the stream bottom (composition and color); **Water** (color, odor, visual problem areas i.e. trash, foam, etc., depth, flow, pools or riffles, and blockages); **Vegetation** (clogging aquatic vegetation, algae, presence of wetlands and wetland conditions); **Stream Bank and Land Use** (presence of trees or shrubs, bank conditions, fill or clear-cutting, land use visible from the brook); **Pipes** (material, size, flow amount, color and odor); **Trash**; **Recreational Use/s**; and **Aquatic and Land Species**

The "Stream Team" split into eleven groups, each taking a segment of Salmon Brook as it flows from the MA/NH border to the Merrimack River. Without disclosing the location of the team's findings, some of the following conditions were found:

Problem Areas:

Problem	Problem Definition
Grass Clippings	The dumping of grass clippings into the waterway promotes an overgrowth of algae, which depletes the water of oxygen and causes fish and other aquatic life to die.
Tree Debris	Fallen trees usually provide good habitat for aquatic life. Occasionally trees may block water flow and boat passage.
Pipes	Pipes can either draw water from or pump something into the waterway. Often, pumping into the waterway is detrimental. Additionally, taking water from the waterway can reduce flow to a damaging level.
Erosion	Removal of vegetation and root systems along the waters edge cause soil & pollutants to be washed into waterway, encouraging the growth of algae and causing unusually high sedimentation.
Purple Loosestrife & Phragmites	Although beautiful to look at, these fast multiplying non-native perennials take over the wetland, virtually eliminating native plants.
Poor Water Quality	Some segments of Salmon Brook had oil sheens, brown scum, algae film, foam and foul odor.
Trash	Trash items sighted included tires, cans, bottles, shopping carts, an oil drum and a rusted car body!

These conditions contribute to degradation of the waterway. If detrimental practices with-in a watershed are corrected, degradation can be slowed down.

On a more positive note, it is important to mention that Salmon Brook has many assets including: good habitat for wildlife (sightings of beaver, river otter, fish, turtles, great blue heron), great recreational trail access, diversity of plants, buffers which provide animal habitat and ease erosion and runoff contamination.

We hope you can join us in a community effort to clean up Salmon Brook on October 23rd . See the attached flyer for details.

Respectfully yours,
The Salmon Brook Stream Team

An Invitation to

Make a Difference!

Who: Salmon Brook Stream Team and You!

When: Saturday, October 23, 1999, from 9 am - noon
(Rain date, Sunday 10/24)

Where: Kirkpatrick Park and Field's Grove in Nashua
(Meet first at Field's Grove)

What: Clean up along Salmon Brook

Why: In a recent survey of Salmon Brook **some** of the following conditions were found: grass-clipping disposal, tree debris in and around the brook and unsightly trash! We must protect this valuable and precious resource that flows into the Merrimack River; which provides drinking water to over 300,000 people!

Bring/Wear: Waders (if you have them), work clothes/pants, work gloves and boots

Questions: Kathy at 888-8103

Directions: **Field's Grove** - E. Dunstable Rd. to Main St. Take a left. Follow until Field St. on the left. The park is on Field St. **Kirkpatrick Park** - From exit 4 S., take a right onto E. Dunstable Rd., then right onto Northeastern Blvd. At light take a left onto Harris Rd. Take a left onto Palisade Drive, then right onto Shady Lane. Follow to the park (directly across from New Searles School)

Refreshments will be provided at Field's Grove!

Hope to see you there!

Sponsored by: The City of Nashua, The Salmon Brook Stream Team and The Merrimack River Watershed Council

Make a Difference Day created by USA Weekend magazine is the most encompassing national day of volunteers helping in their community. In it's 9th year, millions have participated in projects that have benefited their community. Projects vary in scope and size and are eligible for honors, headlines and donations (up to $10,000) and grants ($1,000), to further the cause.